Refactor

The program below reads two dates, returns the zodiac signs of both dates, and the number of days between the dates.

```
mname = ["Jan", "Feb","Mar","Apr",
"May","Jun","Jul","Aug",
"Sep","Oct","Nov","Dec"]
date1 = input().split()
d1 = int(date1[0])
m1 = mname.index(date1[1][:3]) + 1
y1 = int(date1[2])
# Check the zodiac sign
if d1 >= 22 and m1==3 or d1 <=21 and m1==4 : z1 = "Aries"
elif d1 >= 22 and m1==4 or d1 <=21 and m1==5 : z1 = "Taurus"
elif d1 >= 22 and m1==5 or d1 <=21 and m1==6 : z1 = "Gemini"
elif d1 >= 22 and m1==6 or d1 <=21 and m1==7 : z1 = "Cancer"
elif d1 >= 22 and m1==7 or d1 <=21 and m1==8 : z1 = "Leo"
elif d1 >= 22 and m1==8 or d1 <=21 and m1==9 : z1 = "Virgo"
elif d1 >= 22 and m1==9 or d1 <=21 and m1==10 : z1 = "Libra"
elif d1 >= 22 and m1==10 or d1 <=21 and m1==11 : z1 = "Scorpio"
elif d1 >= 22 and m1==11 or d1 <=21 and m1==12 : z1 = "Sagittarius"
elif d1 >= 22 and m1==12 or d1 <=20 and m1==1 : z1 = "Capricorn"
elif d1 >= 21 and m1==1 or d1 <=20 and m1==2 : z1 = "Aquarius"
elif d1 >= 21 and m1==2 or d1 <=21 and m1==3 : z1 = "Pisces"
date2 = input().split()
d2 = int(date2[0])
m2 = mname.index(date1[1][:3]) + 1
y2 = int(date2[2])
if d2 >= 22 and m2==3 or d2 <=21 and m2==4 : z2 = "Aries"
elif d2 >= 22 and m2==4 or d2 <=21 and m2==5 : z2 = "Taurus"
elif d2 >= 22 and m2==5 or d2 <=21 and m2==6 : z2 = "Gemini"
elif d2 >= 22 and m2==6 or d2 <=21 and m2==7 : z2 = "Cancer"
elif d2 >= 22 and m2==7 or d2 <=21 and m2==8 : z2 = "Leo"
elif d2 >= 22 and m2==8 or d2 <=21 and m2==9 : z2 = "Virgo"
elif d2 >= 22 and m2==9 or d2 <=21 and m2==10 : z2 = "Libra"
elif d2 >= 22 and m2==10 or d2 <=21 and m2==11 : z2 = "Scorpio"
elif d2 >= 22 and m2==11 or d2 <=21 and m2==12 : z2 = "Sagittarius"
elif d2 >= 22 and m2==12 or d2 <=20 and m2==1 : z2 = "Capricorn"
elif d2 >= 21 and m2==1 or d2 <=20 and m2==2 : z2 = "Aquarius"
elif d2 >= 21 and m2==2 or d2 <=21 and m2==3 : z2 = "Pisces"
days_in_feb1 = 28
if y1 % 400 == 0 or y1 % 100 != 0 and y1%4 == 0 :
days_in_feb1 = 29
days_in_feb2 = 28
if y2 % 400 == 0 or y2 % 100 != 0 and y2%4 == 0 :
days_in_feb2 = 29
days_in_m1 = 31
if m1==4 or m1==6 or m1==9 or m1==11 :
days_in_m1 = 30
elif m1==2 :
days_in_m1 = days_in_feb1
# The code after this tries to find the number of days from d1, m1, and y1
# to d2, m2, and y2. The implementation my be incorrect, but you don’t have to
# correct them.
days = 0
if m1 < 12 : days += 31
if m1 < 11 : days += 30
if m1 < 10 : days += 31
if m1 < 9 : days += 30
if m1 < 8 : days += 31
if m1 < 7 : days += 31
if m1 < 6 : days += 30
if m1 < 5 : days += 31
if m1 < 4 : days += 30
if m1 < 3 : days += 31
if m1 < 2 : days += days_in_feb1
if m2 > 1 : days += 31
if m2 > 2 : days += days_in_feb2
if m2 > 3 : days += 31
if m2 > 4 : days += 30
if m2 > 5 : days += 31
if m2 > 6 : days += 30
if m2 > 7 : days += 31
if m2 > 8 : days += 31
if m2 > 9 : days += 30
if m2 > 10 : days += 31
if m2 > 11 : days += 30
days += (days_in_m1 - d1 + 1) + int((y2 - y1 - 1)*365.25) + (d2 - 1)
print(z1, z2)
print(days)
```

The program above has a considerable amount of duplicate code. Please refactor this code into the format below.

```
def read_date():
       # Read the day, month, and year separated by space.
       # Return a list containing the day, month, and year.

def zodiac(d,m):
       # Return the zodiac sign given the day (d) and month (m).

def days_in_feb(y):
       # Return the number of days in February of the given year (y).

def days_in_month(m,y):
       # Return the number of month given the month (m) and year (y).

def days_in_between(d1,m1,y1,d2,m2,y2):
       # Return the number of days from d1, m1, and y1 to d2, m2, and y2.

def main() :
       d1,m1,y1 = read_date()
       d2,m2,y2 = read_date()
       # Display the zodiac sign of d1, m1, y1, and d2, m2, y2
       # on the same line, separated by space.
       # Display the number of days from d1, m1, and y1 to d2, m2, and y2.

exec(input().strip()) # This line is required for grader to work.
```

Input

The command that will test the written functions.

Output

The result of the inputted command.

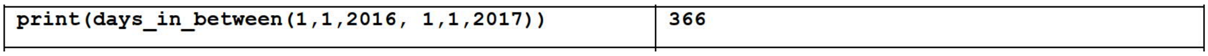
Example

Input (from keyboard)	Output (on screen)

`print(read_date())`
`1 Jan 2017`
	`[1, 1, 2017]`

`print(zodiac(2,9))`	`Virgo`
`print(days_in_feb(2016))`	`29`
`print(days_in_month(2,2017))`	`28`

`main()`
`1 Jan 2015`
`2 Aug 2017`
	`Capricorn Leo`
	`943`



`print(days_in_between(1,1,2016, 1,1,2017))`	**`366`**